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ABSTRACT

Multipass, a complex learning strategy designed to enable a student to gain information from textbook chapters, was taught to eight learning disabled adolescents. The instructional procedures involved a 10 step process including such procedures as describing the steps of the strategy, modeling the strategy, and student practice to criterion in both ability level and grade level materials. Results showed that students learned the strategy following the institution of training and generalized their use of the strategy to grade level textbooks. Furthermore, their grades on tests covering the textbook material improved after learning the strategy. Graphs with statistical data are included. (Author/SB)

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MULTIPASS: A LEARNING STRATEGY FOR IMPROVING READING COMPREHENSION

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The University of Kansas Institute for Research in Learning Disabilities is supported by a contract (#300-77-0494) with the Bureau of Education for the Handicapped, Department of Health, Education, and Welfare, U. S. Office of Education, through Title VI-G of Public Law 91-230. The University of Kansas Institute, a joint research effort involving the Department of Special Education and the Bureau of Child Research, has specified the learning disabled adolescent and young adult as the target population. The major responsibility of the Institute is to develop effective means of identifying learning disabled populations at the secondary level and to construct interventions that will have an effect upon school performance and life adjustment. Many areas of research have been designed to study the problems of LD adolescents and young adults in both school and non-school settings (e.g., employment, juvenile justice, military, etc.)

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COOPERATING AGENCIES

Were it not for the cooperation of many agencies in the public and private sector, the research efforts of The University of Kansas Institute for Research in Learning Disabilities could not be conducted. The Institute has maintained an on-going dialogue with participating school districts and agencies to give focus to the research questions and issues that we address as an Institute. We see this dialogue as a means of reducing the gap between research and practice. This communication also allows us to design procedures that: (a) protect the LD adolescent or young adult, (b) disrupt the on-going program as little as possible, and (c) provide appropriate research data.

The majority of our research to this time has been conducted in public school settings in both Kansas and Missouri. School districts in Kansas which have or currently are participating in various studies include: Unified School District USD 384, Blue Valley; USD 500, Kansas City, Kansas; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 233, Olathe; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission; USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Studies are also being conducted in several school districts in Missouri, including Center School District, Kansas City, Missouri; the New School for Human Education, Kansas City, Missouri; the Kansas City, Missouri School District; the Raytown, Missouri School District; and the School District of St. Joseph, St. Joseph, Missouri. Other participating districts include: Delta County, Colorado School District; Montrose County, Colorado School District; Elkhart Community Schools, Elkhart, Indiana; and Beaverton School District, Beaverton, Oregon. Many Child Service Demonstration Centers throughout the country have also contributed to our efforts.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project, and the Douglas, Johnson, Leavenworth, and Sedgwick County, Kansas Juvenile Courts. Other agencies which have participated in out-of-school studies are: Penn House and Achievement Place of Lawrence, Kansas; Kansas State Industrial Reformatory, Hutchinson, Kansas; the U. S. Military; and Job Corps. Numerous employers in the public and private sector have also aided us with studies in employment.

While the agencies mentioned above allowed us to contact individuals and support our efforts, the cooperation of those individuals--LD adolescents and young adults; parents; professionals in education, the criminal justice system, the business community, and the military--have provided the valuable data for our research. This information will assist us in our research endeavors that have the potential of yielding greatest payoff for interventions with the LD adolescent and young adult

MULTIPASS: A LEARNING STRATEGY FOR IMPROVING READING COMPREHENSION

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Abstract

Multipass, a complex learning strategy designed to enable a student to gain information from textbook chapters, was taught to eight learning disabled adolescents. The instructional procedures involved a ten-step process including such procedures as describing the steps of the strategy, modeling the strategy, and student practice to criterion in both ability level and grade level materials. A multiple-baseline design across three sub-stratagies was replicated eight times. Results showed that students learned the strategy following the institution of training and generalized their use of the strategy to grade level textbooks. Furthermore, their grades on tests covering the textbook material improved after learning the strategy. These results show that a specific instructional methodology can be effectively used to teach a complex learning strategy to learning disabled adolescents.

MULTIPASS: A LEARNING STRATEGY FOR IMPROVING READING COMPREHENSION

As learning disabled students enter secondary schools, a variety of factors characterize their reading behavior. Among them are the following: (a) LD students seldom complete the lengthy reading assignments given in most junior and senior high school classes, (b) LD students usually approach reading assignments in a nonsystemmatic fashion with no clear objectives for reading, (c) LD students often have a poor attitude toward reading assignments because of a long history of school failure, and (d) LD students usually lack the types of skills required to successfully respond to the types of reading expectations in the secondary schools. In short, as curriculum demands increase in the junior and senior high school and a broader range of skills are required of students, LD adolescents often fall even further behind their peers because they lack sufficient reading skills to cope with the demands of the secondary setting. The instructional emphasis in reading for most of these students during their elementary years has been on decoding. However, proficiency in word attack skills alone is not sufficient to allow the LD adolescent to succeed in the complex textbooks common in the secondary grades.

Given the complex demands of the secondary curriculum, increased attention has been given to an instructional model that teaches students specific cognitive or learning strategies as a means of increasing their ability to cope with the curriculum requirements (Alley & Deshler, 1979; Deshler, Alley & Carlson, 1980; Deshler, Lowrey & Alley, 1979; Hallahan, 1980). Technically, learning strategies have been defined as "techniques, principles, or rules that will facilitate the acquisition, manipulation, integration, storage, and retrieval of information across situations and settings" (Alley & Deshler, 1979, p. 13).

A learning strategies approach to remedial education is designed to teach students "how to learn" rather than to teach them specific content. The goal of this approach is to identify specific strategies that can be taught to the LD student to aid him/her in coping with the demands of the secondary curriculum.

One popularly tauted study technique that has appeared in the research literature and in instructional manuals and that fits the definition of a learning strategy is the SQ3R method developed by Robinson (1946). This method was designed as a system for students to apply to their textbook chapters. If successfully used, according to Robinson, the student could realize a faster reading rate, better comprehension, better notes, and improved quiz performance. The SQ3R method involves: (a) a quick survey (S) of the chapter (Pass I); (b) a second pass through the chapter where the student turns subtitles into questions (Q), reads (R1) to locate the answer to the question, and recites (R2) and makes notes of the answer (Pass II); and (c) a final review (R3) of the material (Pass III).

Although the technique was based on a number of learning principles and the individual steps of the strategy appear to have a sound research foundation, the results of use of the SQ3R method have been mixed (Graham, 1977). The majority of the studies centering on the application of SQ3R have involved college students. Although some of the studies have reported improved reading rate and comprehension after using the technique (Robinson, 1946), others have not (Wooster, 1953). Improved notes were reported in one study (Wooster, 1953). In two studies comparing the use of the SQ3R technique to other reading techniques, other techniques (e.g., underlining) were shown to be as good as or superior to the SQ3R technique (Niple, 1968; Willmore, 1966). Diggs' (1972) results, on the other hand, indicated that the technique appears to be especially useful with students needing overall reading improvement.

Two studies which have targeted instruction in the SQ3R method with secondary (7th grade) students (Donald, 1967; Garty, 1975) have had negative results. In both studies, no statistically different results were found between a group using the SQ3R method and one not using it.

Thus, the results on the use of the SQ3R technique are mixed at best. Numerous other procedures similar to SQ3R have been described in the literature (Burmeister, 1974; Laurita, 1972; Manzo, 1969). These procedures have been primarily applied in instructional rather than research settings and thus there is a paucity of empirical findings on the efficacy of these procedures. Such contradictory results obtained on the SQ3R method may be the products of the different populations taught, different teaching methodologies employed, different interpretations of the SQ3R strategy, and different reading materials used.

Such considerations are important ones, because if the learning strategies approach is to be shown to be effective with the learning disabled secondary population a number of factors must be substantiated. First, an instructional methodology must be specified which is effective when teaching any number of strategies to LD students. Second, the strategies must be effective in enabling LD students to tackle the demands of the regular, mainstream curriculum. They must be able to use the strategies with such reading materials commonly assigned in regular classes. Third, each strategy must be carefully specified so that whoever teaches it will be assured of similar results. Finally, the populations who successfully learn the strategy must be carefully specified so that others will be able to compare their student populations to these students to gain an idea of their chances for success.

The purpose of this study was to address these issues by applying a specific instructional methodology to teach an adaptation of the SQ3R method to learning disabled adolescents. Measurement of the students' application of the strategy to regular class materials was specifically targeted to determine how useful the strategy would be in aiding the students in responding to the demands of the regular secondary curriculum.

Method

Subjects

Eight secondary students, 5 males and 3 females, participated. All of the students were being served in special education programs for the learning disabled in their schools. The students' school records were reviewed and their teachers were interviewed. Only those students having IQ's in the normal range (i.e., 80 or above), exhibiting deficits in one or more achievement areas, and not exhibiting any evidence of physical or sensory handicaps, emotional disturbance, or economic, environmental, or cultural disadvantage were included. The students selected had IQ's ranging from 80 to 107 ($\bar{x}$ = 91). Their reading achievement grade level scores ranged from 4.3 to 7.3 ($\bar{x}$ = 6.0). The students' ages ranged from 14 to 18 years (X= 16.2 years) and they were currently in grades 7 through 12 (X= 10). The procedures of this study were described to the students and their parents, and written consent was obtained.

Setting

The study took place in a classroom-like environment in a school which has been converted to a community center. Each student was seated at a small table with his/her teacher.

Instructional Materials

Each teacher was provided with two notebooks: one contained a step-by-step description of the instructional procedures and the other served as a

file for records to be kept of the student's progress. Two sets of reading materials were provided for each student. The first set included published textbooks at the student's instructional reading level as determined by a recently administered achievement test.[1]

The second set of reading materials included published materials written for students at the student's current grade level. Each student was asked to bring a textbook from one of his/her current mainstream content classes to be used in the study. Students brought their textbooks from science, social studies and U.S. History.

All reading materials selected had the following attributes:

1. The text was designed to impart content information.
2. The text was divided into clearly delineated chapters.
3. The text had a table of contents.
4. Each chapter in the text had a title, an introduction, subtitles, illustrations, a summary, and study questions.

Procedures

General procedures. Each student received individual instruction from a teacher. All five teachers involved were certified LD teachers with a range of one to eleven years of teaching experience in public school special education programs. Four of the five teachers had Master's Degrees. The teachers had attended an eight-hour workshop where the training and testing procedures were explained in detail. One LD teacher who was well-versed in the procedures supervised the other four teachers during their sessions with the students. Thus, procedural questions were resolved on the spot. The students met with their teachers for periods of time ranging from one to two hours in length. Depending on their schedules, some met as frequently as daily and others met once a week.

Instructional procedures. The instructional steps were adapted for use from those outlined by Alley and Deshler (1979) and Deshler, Alley, Warner, and Schumaker (1980). They are as follows:

Step 1: Test to Determine Student's Current Learning Habit

In this step, the teacher tested the student's Multipass skills in both sets of materials (reading ability level and grade level). After testing was completed, the teacher discussed the results with the student, affirming that the student exhibited a deficit in the way he/she interacted with materials and, as a result, in the way he/she was able to recall the information.

Step 2: Describe the Learning Strategy

Next, the teacher described the steps involved in the Multipass strategy to the student and contrasted them with the student's current learning habit. The steps included the specific behaviors in which the student should engage and the sequence of behaviors which should be followed. As each step was explained, a rationale was given for why the behavior was important and how it would help the student to learn material more easily.

Step 3: Model the Strategy

In this step, the teacher modelled the Multipass strategy for the student. Thus, the teacher demonstrated the strategy by acting-out each of the steps previously described to the student while "thinking aloud" so the student could witness all of the processes involved in the strategy.

Step 4: Verbal Rehearsal of the Strategy

Here, the student verbally rehearsed the steps involved in the Multipass strategy to a criterion of 100% correct without prompts. This instructional step was designed to familiarize the student with the steps of the strategy such that he/she could instruct him/herself in the future as to what to do next when performing the strategy.

Step 5: Practice in Controlled Materials

In this instructional step, the student practiced applying the strategy to successive chapters in the materials written at his/her current reading level. This reduced the demands on the student such that he/she could concentrate on the learning of the new strategy. As the student became proficient in the strategy, he/she was encouraged to progress from overt self-instruction to covert self-instruction while practicing the strategy.

Step 6: Feedback

As the student applied the strategy to a new chapter, the teacher gave the student both positive and corrective feedback. Steps 5 and 6 were recycled with additional chapters until the student learned to use the strategy to a specified criterion.

Step 7: Test

The same tests administered during Step 1 were given to the student again using different text chapters in both reading ability level and grade level materials. This gave a measure of each student's progress in learning the strategy. If indicated by the test results, the student received the next three instructional steps. If, on the other hand, the student met criterion in both sets of materials, instruction was terminated.

Step 8: Practice in Grade Level Materials

When this instructional step was necessary, the student practiced applying the Multipass Strategy to successive chapters in materials used at his/her grade level.

Step 9: Feedback

As the student practiced in the grade level chapters, the teacher gave the student both positive and corrective feedback about his/her performance. Steps 8 and 9 were repeated until the strategy was mastered to a specified criterion.

Step 10: Test

Once the student met criterion on grade level practice, the tests administered in Steps 1 and 7 were given again using different text chapters. These served as a final measure of the student's skills.

The Multipass strategy procedures. The Multipass strategy was designed to include three sub-strategies: Survey, Size-Up, and Sort-Out. Each of these sub-strategies required that the student make a "pass" through the chapter for a particular purpose. Because each sub-strategy required that a number of behaviors be performed by the student, each of the sub-strategies was taught as a unit and the student progressed through the first six instructional steps as outlined above for each unit in succession. Once the student had mastered all three sub-strategies in the controlled (ability level) mater-

tials, he/she was post-tested and, if necessary, received simultaneous practice on the three sub-strategies in grade level materials (Steps 8 and 9).

The purpose of the Survey Pass was to familiarize the student with main ideas and organization of the chapter. Thus, this previewing pass required the student to: (a) read the chapter title, (b) read the introductory paragraph, (c) review the chapter's relationship to other adjacent chapters by perusing the table of contents, (d) read the major subtitles of the chapter and notice how the chapter is organized, (e) look at illustrations and read their captions, (f) read the summary paragraph, and (g) paraphrase all the information he/she had gained in the process.

The purpose of the Size-Up Pass was to gain more specific information and facts from the chapter without reading the chapter from beginning to end. This pass required the student to first read each of the questions at the end of the chapter to determine what facts appeared to be the most important to learn according to the author. If the student could already answer a question as the result of the Survey Pass, a checkmark (✓) was placed next to the question. Next, the student progressed through the chapter from beginning to end following these steps: (a) look for a textual cue (e.g., bold face print, subtitle, colored print, italics); (b) make a question out of the cue (e.g., if the cue was the italicized vocabulary word, "conqueror", the student asked "What does conqueror mean?" or if the cue was the subtitle, "The Election of 1848" the student might ask, "Who won the election of 1848?" or "Why was the election of 1848 important?"); (c) skim through the surrounding text to find the answer to the question; and (d) paraphrase the answer to yourself without looking at the book. When the student reached the end of the chapter using these four steps for each textual cue, he/she was required to paraphrase as many facts and ideas as he/she could remember about the chapter.

The purpose of the Sort-Out Pass was to get the student to test him/herself over the material in the chapter. In this final pass, the student read and answered each question at the end of the chapter. If a question could be answered immediately, the student placed a checkmark next to the question. If the student still could not answer a question, the answer was sought by (a) thinking in which section of the chapter the answer would most likely be located, (b) skimming through that section for the answer to the question, (c) if the answer was not located, thinking of another relevant section, and (d) skimming that section, and so on until the student could answer the question and could place a checkmark next to the question.

Testing procedures and measurement. Eight tests (mentioned in Steps 1 and 7 above) were given the students before and after training. The first six tests measured the students' skills in the three sub-strategies in both ability level and grade level materials. For the two Survey Tests (one in ability level materials and the other in grade level materials), the student was given a chapter in a text and instructed to get as much information about the main ideas and organization of the chapter as possible in a specified period of time (one minute per page). The student's surveying procedures were observed by the teacher who used a behavioral checklist to record the student's behavior. When the time was up, the student closed his/her book and was asked to tell everything he/she could remember about the main ideas and organization of the chapter. He/she was also asked how he/she learned this information. All verbal answers were tape recorded.

For the two Size-Up Tests, the student was instructed to gain as many specific facts from the chapter as possible without reading the chapter. A specified period of time (1½ minutes per page) was designated for this task also. At the end of the time, the student closed his/her book and: (a) re-

ported the cues he/she had used in the chapter, and (b) told as many facts as he/she could remember about the material covered in the chapter. Again, the verbal responses were tape recorded.

For the two Sort-Out Tests, the student was instructed to show how he/she would test his/her knowledge about the information in the chapter. The student's self-testing process was observed and recorded using a behavioral checklist, and a record of the number of questions the student correctly answered at the end of the chapter was made. Each time the student received the series of three sub-strategy tests, a new chapter was used.

After the tests had been given, the teacher listened to the tape recordings of the student's verbal reports of the information learned and recorded on specially designed recording sheets the information reported. This information was then compared with the chapter to determine whether it was covered in the chapter. Once all the information on a given substrategy test was compiled, the percentage of appropriate behaviors emitted was calculated for that sub-strategy test. For example, the number of checkmarks the student received on the Survey Observation Checklist were divided by the total number of survey behaviors possible. For the Size-Up facts reported by the student, the number of relevant facts reported were divided by a criterion number of facts required.

Two other tests were given, one with reading ability level and one with grade level materials. For these tests, the student was assigned a new chapter to read and study as he/she wished. A date was set for a test covering the information in the chapter. The student was given a minimum of 24 hours to study for the test. This allowed study time was the same for the pretest and the posttest for each sudent. A test, written in an objective format with twenty questions, was designed by the teacher. At the appointed time, the student was administered the test as it might have been administered in a

regular class. The student was asked to answer the questions without using text or notes and was given 30 minutes to complete the test. The test was graded by the teacher and the percentage of questions answered correctly was recorded.

Interobserver reliability was determined by having a second teacher independently observe the student, listen to the student's tapes, or grade the student's written test once before training and once after training for each kind of test for each student. The two teachers' recordings were compared item-by-item. An agreement was scored if both teachers recorded a particular behavior or response in exactly the same way. The percentage of agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. On the Survey Tests there were 164 agreements out of 189 opportunities to agree (87% agreement); on the Size-up Tests there were 163 agreements out of 179 opportunities to agree (91% agreement); and on the Sort-Out Tests there were 283 agreements out of 294 opportunities to agree (96% agreement). On the objective tests, the teachers graded 156 out of 160 questions in the same way for 98% agreement.

Experimental Design

A multiple-baseline design across sub-strategies was employed for each student. Thus, each student received all eight tests in baseline and then the first sub-strategy, Survey, was taught. When the student reached criterion on Survey practice, the ability level Survey Test was given along with another baseline, ability level Size-Up Test. As long as the student's baseline had remained stable, Size-Up was taught. When the student reached criterion on Size-Up practice, another ability level Size-Up test was given along with another baseline, ability level Sort-Out test. Sort-Out then was taught if the student's Sort-Out baseline scores had remained stable. When the student

reached criterion on Sort-Out practice, all three ability-level sub-strategy tests and the written content test were administered again. If the student met criterion on all these ability level tests, all the grade level tests were administered to determine whether the student could generalize the skills to grade level materials. If the test results indicated little generalization took place, the student then received practice in these materials. If, on the other hand, the test results indicated that the student could generalize the skills to criterion on grade level materials, training for that student was terminated.

Results

Figure 1 shows the test results and practice results for a 10th grade student, Bob (Student 1). Each of the three top graphs show the percentage of appropriate behaviors performed by Bob in one of the sub-strategies: Survey, Size-Up, or Sort-Out. The bottom graph shows the results from the content tests. Scores achieved in ability level materials are plotted with circles, and scores achieved in grade level materials are plotted with squares. During baseline, Bob was observed to use 33% of the survey behaviors but could verbally report less than 15% of the information available through surveying the chapters. He needed to practice the survey technique five times before he met criterion in using the technique and in reporting the appropriate information. The survey posttests showed that he had mastered the technique in ability level materials and could generalize his use of the technique to grade level materials at similarly high levels.

During baseline in Size-Up, Bob used 33% or fewer of the textual cues available in the chapter and reported 20% or less of the information required. After two Size-Up practices, Bob met criterion in using the cues and in reporting information. Posttests again revealed that Bob could apply the Size-Up

technique to ability level materials, and he could generalize his use of Size-Up to grade level materials with 100% accuracy.

On the Sort-Out technique during baseline, Bob could neither process any of the study questions at the end of the chapter correctly, nor could he answer any of the questions correctly. After one practice however, he had mastered the Sort-Out technique. Posttests again revealed 100% mastery and generalization to both ability level and grade level chapters.

On the content tests, Bob received scores of 75% correct on the ability level test and 25% correct on the grade level test during baseline. After training in all three sub-strategies, Bob took tests after supervised and unsupervised study in four textbook chapters, two at ability level and two at grade level. The tests after supervised study took place over chapters on which the student had also received the three sub-strategy tests. Thus, the teacher was certain the student had used the Multipass strategy before taking these tests. For unsupervised study, the student was given the assigned chapter, instructed to study it as in baseline, and given the test after a minimum of 24 hours had elapsed. Bob performed better after the supervised study sessions but his grades on all four tests were at or above 85% correct. Thus, Bob did not use the Multipass sub-strategies to criterion before he was trained on them, but he did after training. His use of the sub-strategies allowed him to remember more of the information and to perform better on the content tests given to him over both ability and grade level materials.

Figures 2, 3, 4, 5, 6, 7, and 8 show the results for the other seven students receiving Multipass instruction. Their results are similar to Bob's. All of the students mastered the strategy in ability level materials and were able to use the strategy in grade level materials without further training or practice.[2] All the students' grades in content tests improved from baseline

to post-training. Most of the students' grades in baseline on the grade level tests were failing or barely passing grades. After training, their test grades improved dramatically to "C" level or above.

The largest number of practice sessions was required by the students to master the Survey sub-strategy. The number of Survey practices ranged from one to nine practice sessions.[3] Sort-out required the fewest number of practices ranging from one to four, while Size-up required one to five practice sessions across the eight students.

The instructional time needed to present each of the three sub-strategies (Steps 2-4) was as follows: Survey, one hour; Size-Up, one hour; and Sort-Out, one-half hour. Survey practices took about one-half hour each, Size-Up practices took one hour each, and Sort-Out practices took one-half hour each. Thus, Bob received about eight hours of instruction to learn the Multipass strategy. The total instructional time for the other students ranged from 4½ to 11½ hours. Each test comprising three sub-strategy tests took about 45 minutes to administer, and each content test took about 15 minutes.

Discussion

The results of this study support the conclusion that learning disabled adolescents can be taught to use a complex learning strategy, Multipass. Eight replications of a multiple-baseline design demonstrated that improved performance did not occur until training in a given sub-strategy had been implemented. Furthermore, the students could apply the strategy in their ability level textbooks and textbooks used in their regular classes. After they had learned the strategy, their grades in tests covering material from the textbook chapters markedly improved. The students also reported that their grades on tests in their regular classes were improving. Previously failing students now were reporting C or B grades on class tests. All of the

students expressed their satisfaction with learning the strategy and some came back to their teachers asking for "refresher" sessions and review cards for their notebooks when school started the next school year.

The LD teachers also were pleased with the results. They reported that the students, once they saw their improvement, became very willing and enthusiastic learners. This was gratifying to the teachers, who reported that they would like to continue teaching the strategy to other students.

The successful results of this study in teaching the Multipass technique are contrasted with mixed, if not somewhat negative results, of similar studies reported in the research literature. The reasons for this difference are not entirely clear but are perhaps related to such factors as the clearly specified behaviors for each of the sub-strategies, the clearly specified instructional methodology, instruction in each sub-strategy to criterion, and the individual instruction used in this study.

Nevertheless, some cautionary statements are necessary when considering such promising results. First, all eight of the students in this study were reading at or above the fourth grade level. It remains unknown how lower functioning readers would respond to Multipass instruction. Some of our experience with other reading strategies suggests that the reader functioning below the fourth grade level might be able to learn to apply the strategy to ability level materials but may not be able to do so in grade level materials, especially as the gap between reading ability level and grade level widens. The largest gap exhibited by a student in this study was seven years (she was reading at fifth grade level and was in the twelfth grade.) Additional difficulty may be experienced by students whose high school textbooks are written at the college level or higher.

Another concern surrounds the practicality of the individualized instructional approach for the resource room. The teachers in this study agreed that they would not have the time to devote in their classes to use this instructional package for individual students. They also agreed, however, that they would be able to use it in teaching small groups of four to five students. Current research is progressing in this direction through The University of Kansas Institute for Research in Learning Disabilities in actual resource room programs. Tentative results are promising.

Another consideration is that the use of this strategy has not been compared to other strategies aimed at gleaning information from textbook chapters. Conceivably, another strategy might be at least as effective as Multipass. To date however, no research comparing the use of Multipass to an additional strategy has been undertaken.

Finally, although the instructional methodology used in this study has been shown to be effective in teaching Multipass, a number of other strategies must be researched in both individual and group settings before the efficacy of the methodology can be determined. Such research is currently underway at The University of Kansas Institute for Research in Learning Disabilities.

Footnotes

1. An example textbook used as a reading level material in this study is The New Exploring Our Nation's History, by S. Schwartz and J. R. O'Connor and published by Globe Book Co., Inc., New York, 1979.
2. One student, S_7, was reading at grade level. Thus, she was administered tests and received training only in grade level materials.
3. S_6's teacher did not keep a record of his scores during Survey practice sessions, but he had four of these practices.

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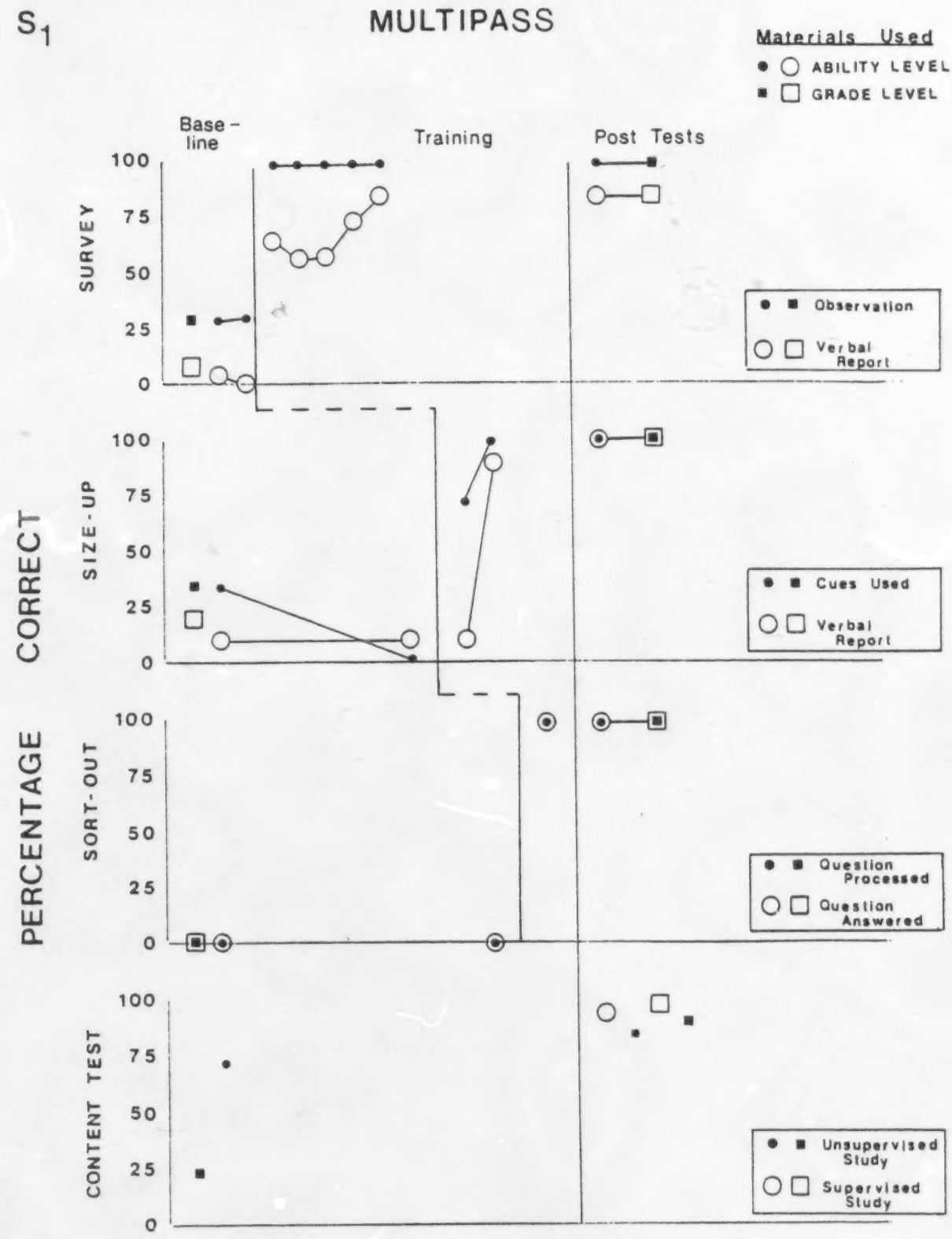
S1
MULTIPASS
Materials Used
ABILITY LEVEL
GRADE LEVEL
Base-line
Training
Post Tests
PERCENTAGE CORRECT
SURVEY
SIZE-UP
SORT-OUT
CONTENT TEST
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
Supervised Study

FIGURE 1

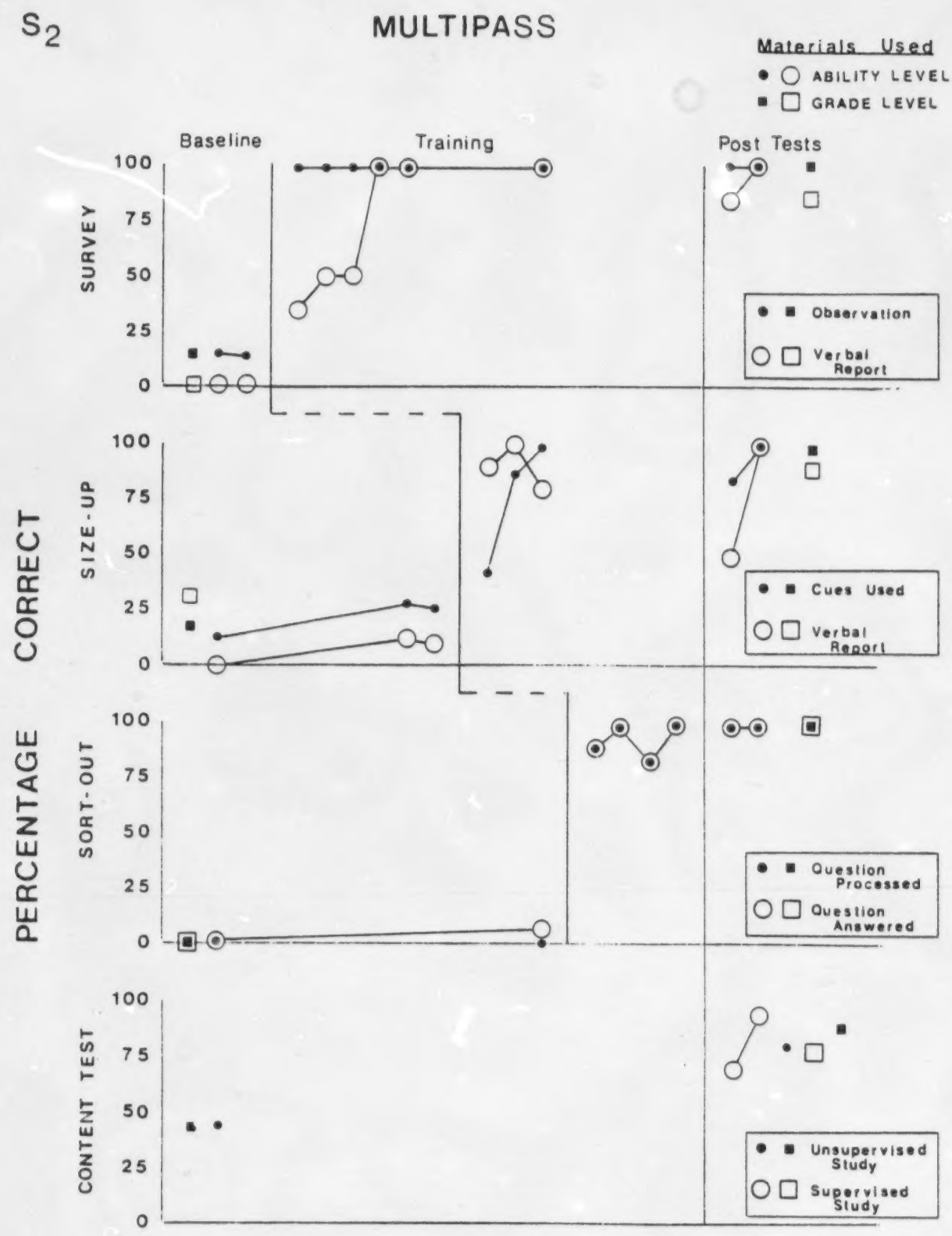
S2
MULTIPASS
Materials Used
ABILITY LEVEL
GRADE LEVEL
Baseline
Training
Post Tests
PERCENTAGE CORRECT
SURVEY
SIZE-UP
SORT-OUT
CONTENT TEST
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
Supervised Study

FIGURE 2

S_3

MULTIPASS

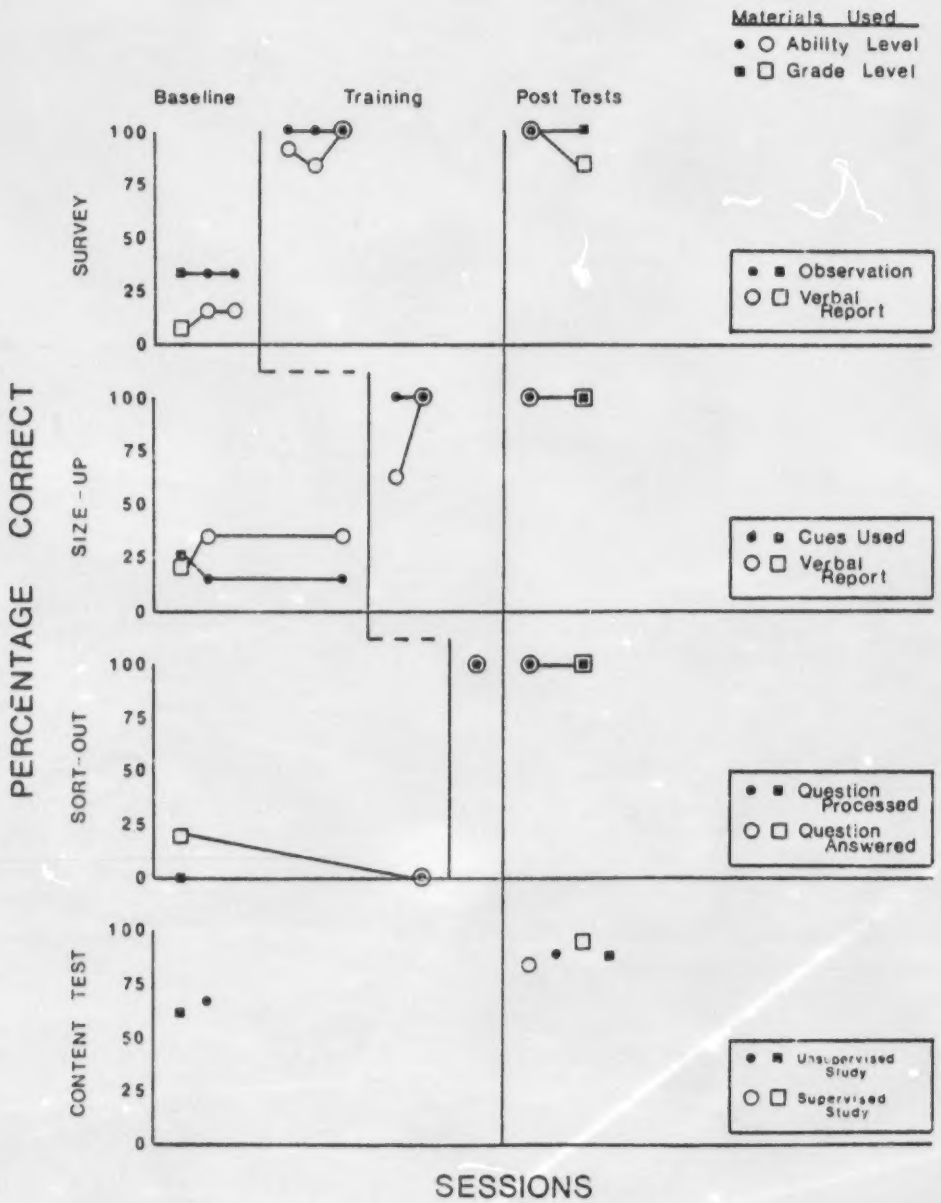

FIGURE 3

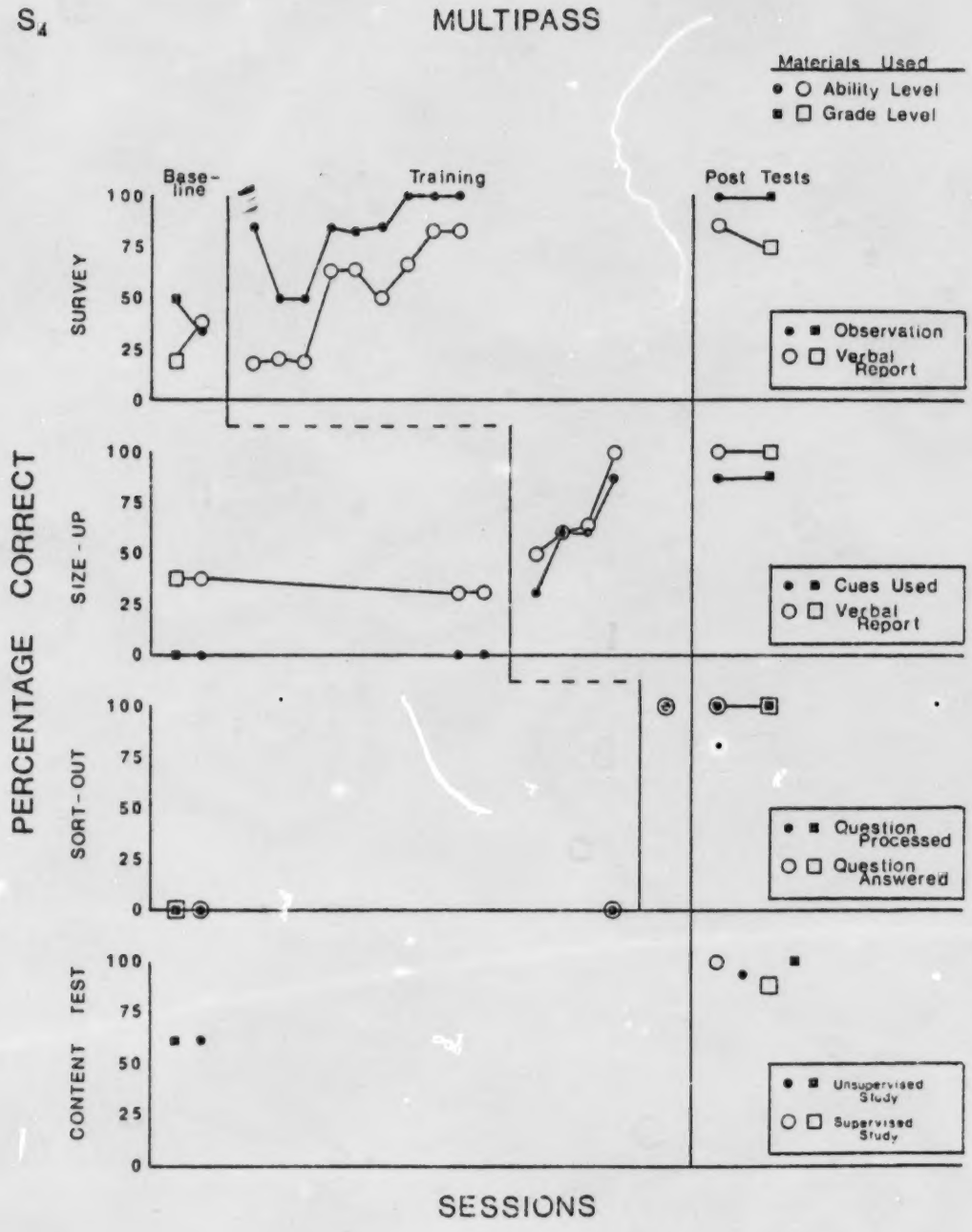
S4
MULTIPASS
Materials Used
Ability Level
Grade Level
Base-line
Training
Post Tests
PERCENTAGE CORRECT
SURVEY
SIZE-UP
SORT-OUT
CONTENT TEST
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
Supervised Study
SESSIONS

FIGURE 4

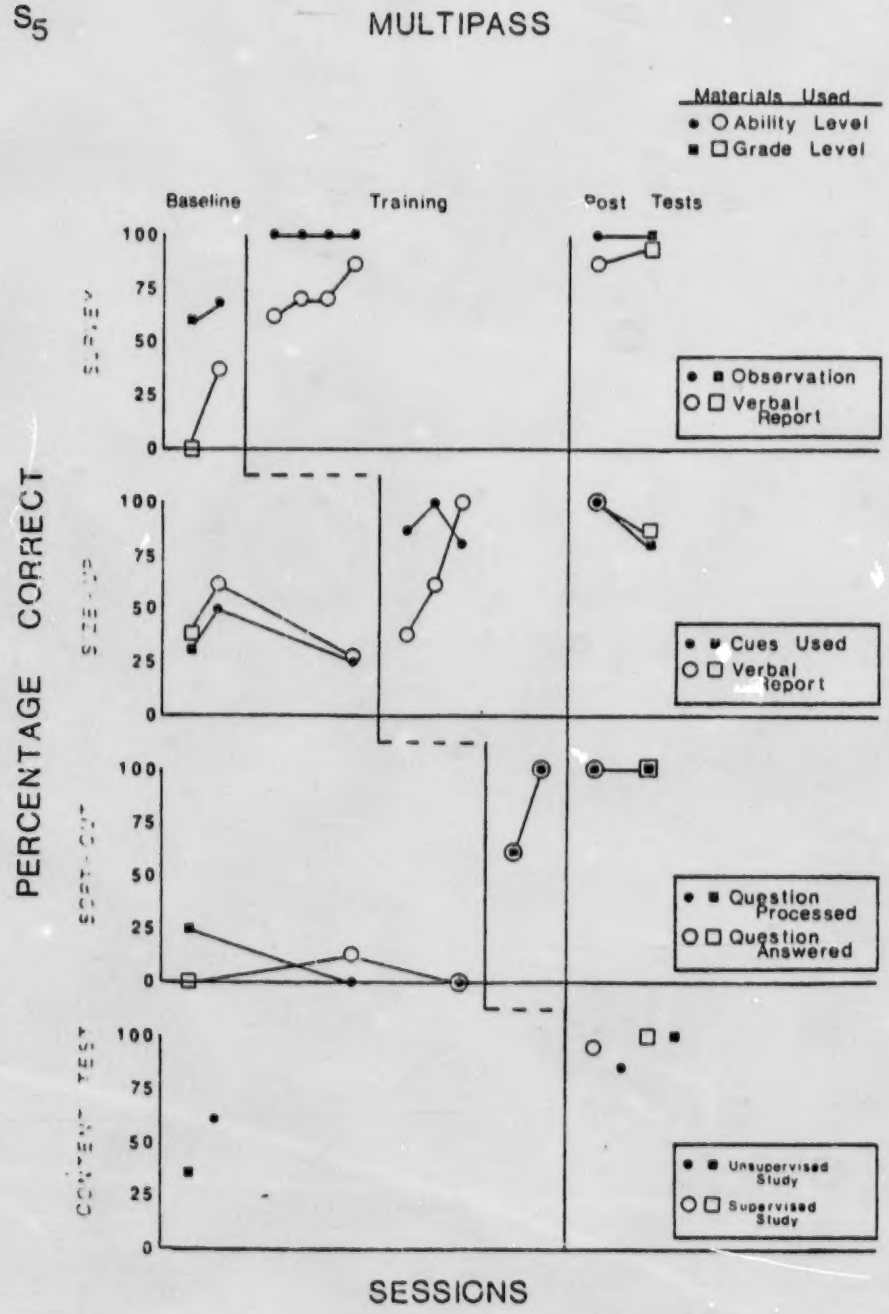
S5
MULTIPASS
Materials Used
Ability Level
Grade Level
Baseline
Training
Post Tests
PERCENTAGE CORRECT
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
Supervised Study
SESSIONS

FIGURE 5

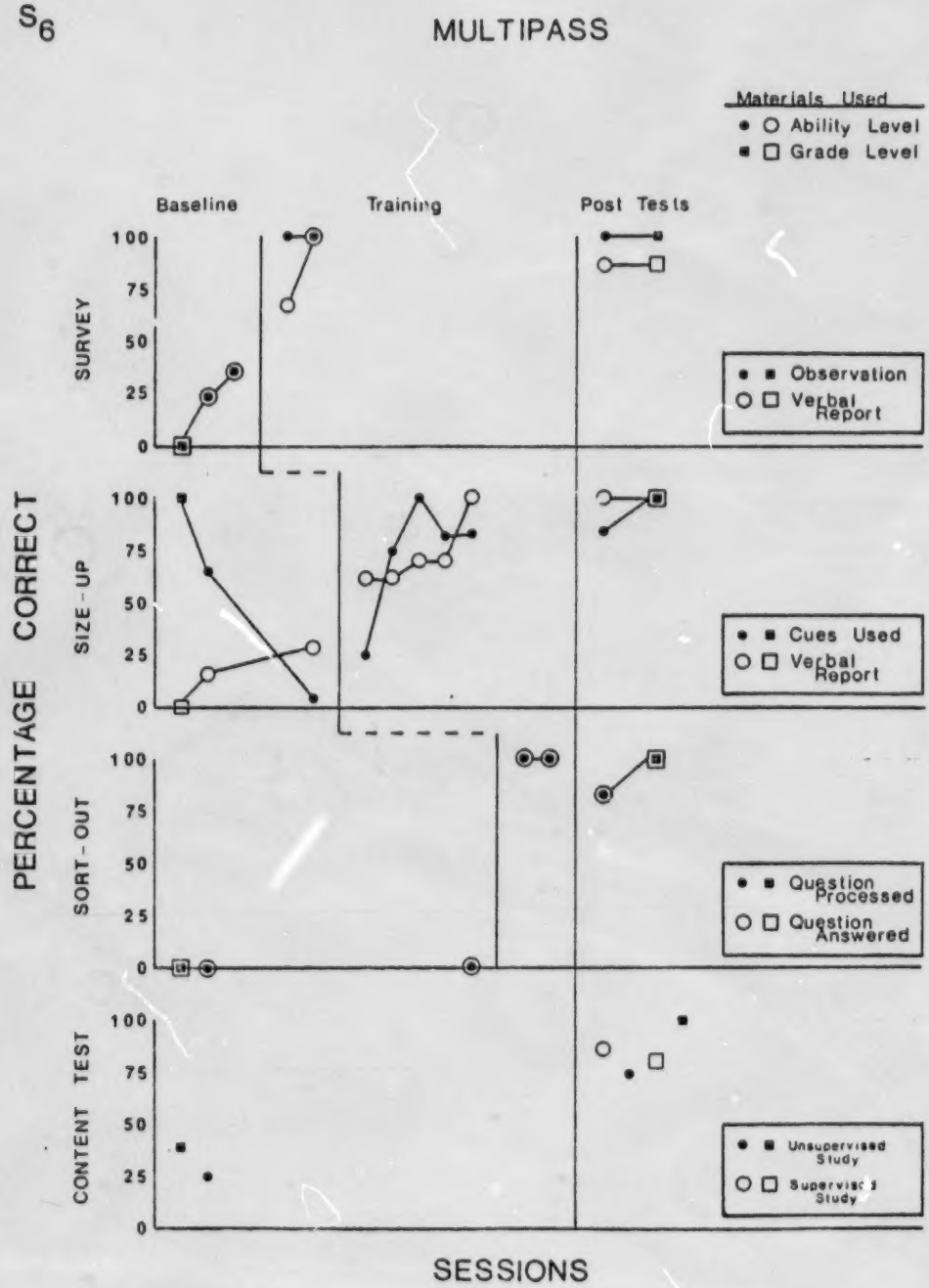
S6
MULTIPASS
Materials Used
Ability Level
Grade Level
Baseline
Training
Post Tests
SURVEY
SIZE-UP
SORT-OUT
CONTENT TEST
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
PERCENTAGE CORRECT
SESSIONS

FIGURE 6

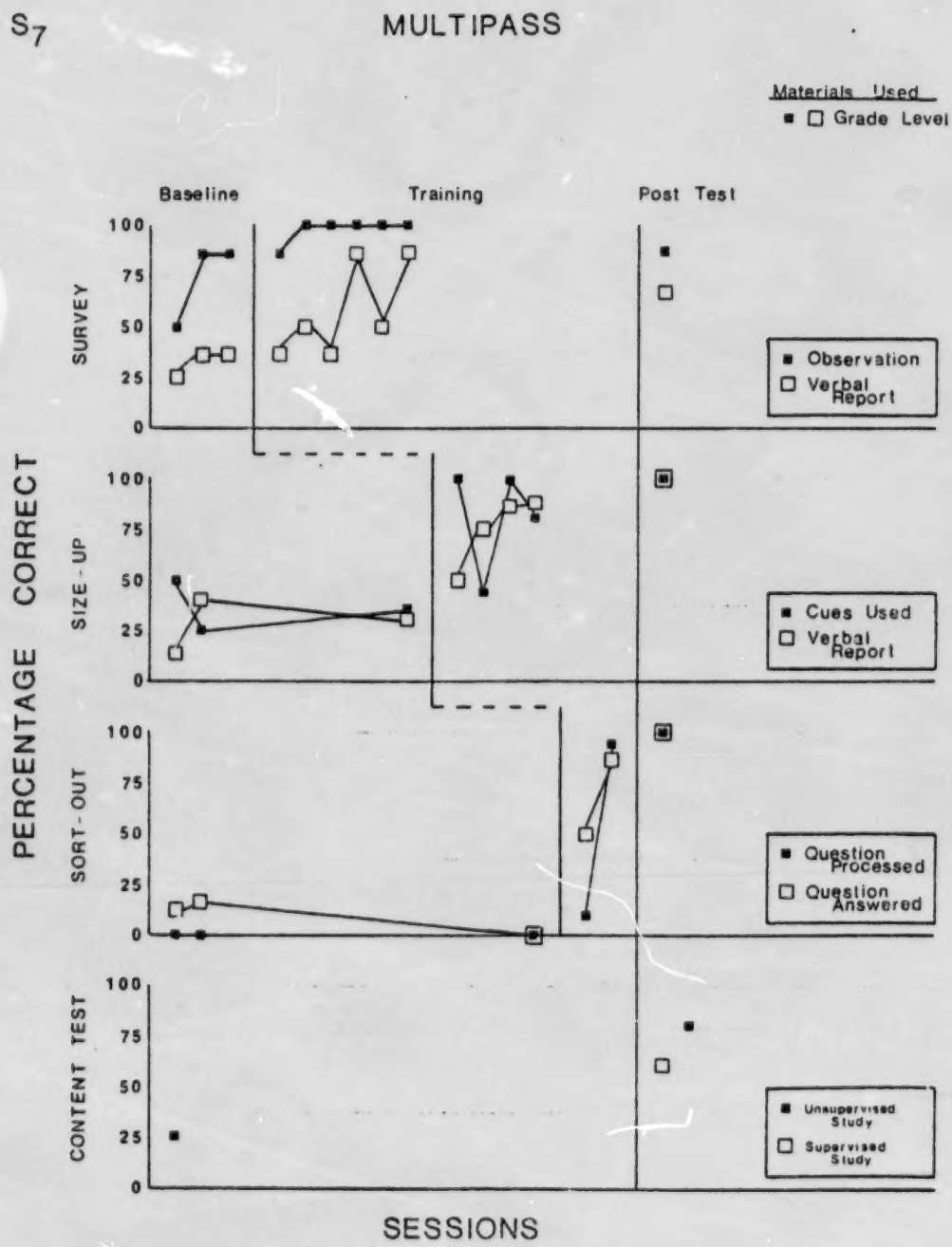
S7
MULTIPASS
Materials Used
Grade Level
Baseline
Training
Post Test
PERCENTAGE CORRECT
SURVEY
SIZE-UP
SORT-OUT
CONTENT TEST
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
Supervised Study
SESSIONS

FIGURE 7

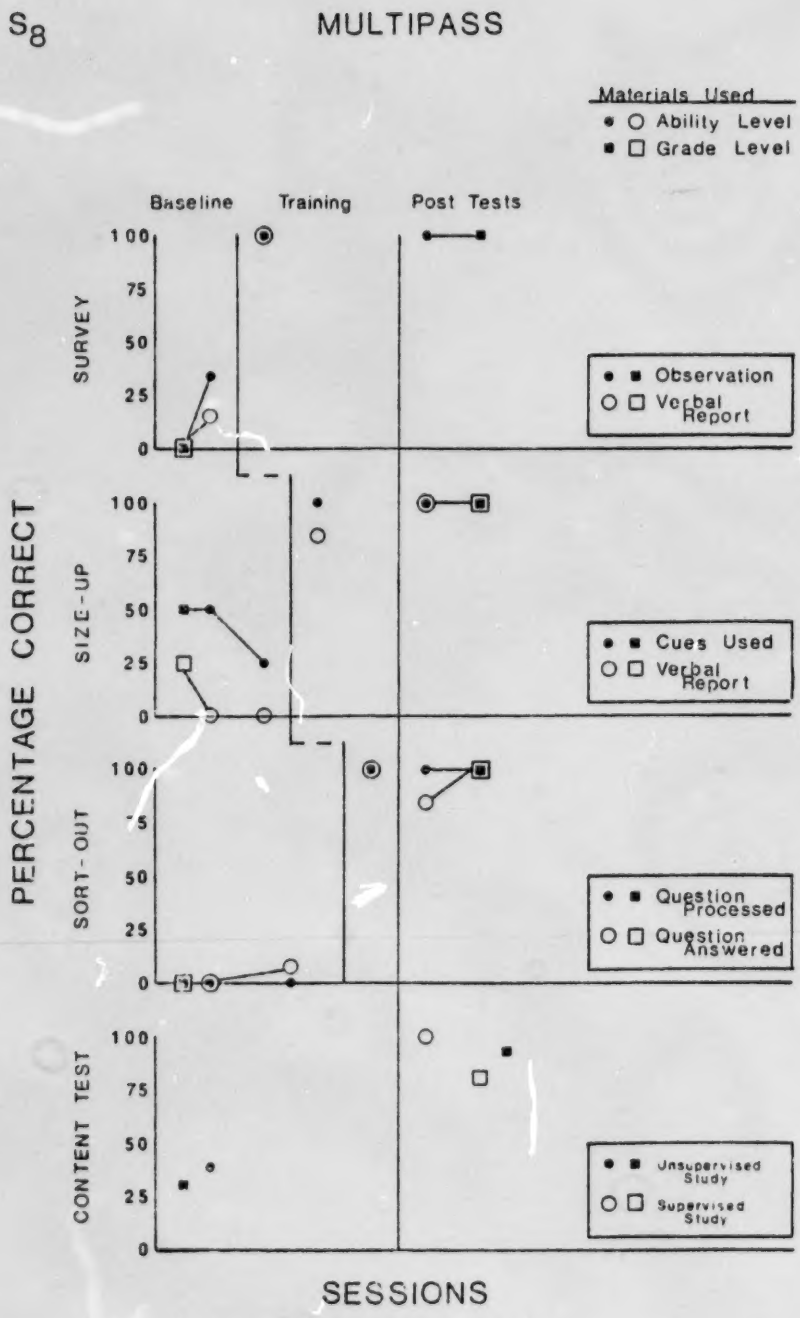
S8
MULTIPASS
Materials Used
Ability Level
Grade Level
Baseline
Training
Post Tests
PERCENTAGE CORRECT
SURVEY
SIZE-UP
SORT-OUT
CONTENT TEST
100
75
50
25
0
Observation
Verbal Report
Cues Used
Verbal Report
Question Processed
Question Answered
Unsupervised Study
Supervised Study
SESSIONS

FIGURE 8